

# Operating Instructions

## Glasswashing machine

### FV 28 GiO

#### TRANSLATION OF THE "ORIGINAL OPERATING INSTRUCTIONS"

The original operating instructions can be downloaded from: <https://partnernet.meiko.de>





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# 1 Introduction and general information

Dear Customer,

We are delighted about the confidence you have shown in our products.

It is very important to us that you should obtain significant use from MEIKO products and that they should make your work easier.

If you follow the instructions in this document carefully, your dishwashing machine will always give you total satisfaction and will have a long service life.

The cleaning and disinfection machine has been assembled by us at the factory and has undergone a thorough inspection. This provides us with the certainty and you with the guarantee that you will receive a fully developed product.

**We would therefore ask you to read these operating instructions carefully before using the installation. Any further associated operating instructions for accessories and integrated third-party products must be strictly observed!**

These operating instructions inform users of this installation about the installation, its operating methods, its use, the safety instructions and the maintenance.

This information will help you to get to know the installation fully and to use it properly. It will also enable you to avoid repairs and the concomitant loss of productive work.

In the event of any damage caused by non-observance of these operating instructions, any guarantee claims are invalid. We accept no liability for any additional damage caused as a result.

MEIKO is constantly working on the further development of all its models.

We would therefore ask you to understand that because of this, we must reserve the right to make modifications at any time to any items covered by the contract in terms of their shape, fittings and technical characteristics.

No claims may therefore be based on the details, the images or the descriptions contained in these operating instructions.

Should you require any further information, or in case any particular problems not dealt with in great detail in the operating instructions should arise, you may contact the relevant MEIKO branch to obtain the information you require.

We should also like to inform you that the contents of these instructions do not form part of or amend any earlier or existing agreement, statement, or legal position.

All MEIKO's obligations arise from the relevant purchase contract which also contains the entire and only valid guarantee provisions.

These contractual guarantee rules shall be neither extended nor restricted as a result of any explanations given in the instructions.

You receive all this technical documentation free of charge.

Further copies may be made available against the payment of a fee.

MEIKO very much hopes that you will enjoy our product and use it successfully.



## 1.1 Storage

Always store the operating instructions close to the installation!  
The operating instructions must always be kept within easy reach!

## 1.2 Name and address of the manufacturer

Please address any queries, technical problems etc. directly to:

### **MEIKO Maschinenbau GmbH & Co. KG**

Englerstr. 3  
D - 77652 OFFENBURG  
Phone + 49 781 / 203-0  
Fax: +49 / 781 / 203 - 1121 (Export)  
<http://www.meiko.de>  
[info@meiko.de](mailto:info@meiko.de)

or:

Name and address of the MEIKO branch, manufacturer's agent or dealer.

((nser company stamp or address))

## 1.3 Description of the machine

Please provide the following information on any query and/or when ordering spare parts:

Type: \_\_\_\_\_

SN: \_\_\_\_\_



\_\_\_\_\_

This information can be found on the plate.



## 2 Explanation of the safety symbols used

The following safety symbols will appear throughout these operating instructions. The purpose of these symbols is to draw the reader's attention to the text of the adjacent safety information.



This symbol warns that there is danger to human life and health.



This symbol warns that there is danger to the installation, to material or to the environment.



This symbol denotes information that helps you to understand the installation's operation.



Warning of dangerous electrical current!



Warning hand injury!



**No splashing water:** prohibits the use of a high pressure hose.



**Danger of explosion:** indicates a potential explosion hazard.



**Non-potable water:** The water is not for drinking. Health can be endangered by drinking.



**Danger of burning:** indicates possible hazard due to hot surfaces or media.

## 3 Use in accordance with regulations



DANGER!

This Glasswashing machine is intended for washing dishes, cutlery and glasses.



The Dish- and Glasswashing machine must be used only in accordance with regulations. Other uses are prohibited. The items to be cleaned must be suitable for washing in Multi washer.

The FV 28 GiO machine is a technically-based piece of equipment (and is not a consumer product within the meaning of the provisions of the Equipment and Product Safety Act). It is intended solely for use in commercial (i.e. non-domestic) situations.



## 4 EC declaration of conformity

# EG- Konformitätserklärung

CE Declaration of Conformity / Déclaration de conformité CE / Dichiarazione di conformità CE / Declaración de conformidad CE / CE-conformiteitsverklaring

**Firma** / Company/Société / Ditta / Empresa / Fabrikant:  
**Adresse** / Address / Adresse / Indirizzo / Dirección / Adres:

**MEIKO Maschinenbau GmbH & Co. KG**  
 Englerstraße 3  
 D-77652 Offenburg  
 E-mail: info@meiko.de

### Auftrag Nr.

Order no. / No. de commande / No. d'ordine / No. de pedido / Opdracht nr.:

| Spülmaschine Typ       | FV 28 G   | FV 130 B | DV 80 T  | DV 120.2    | EcoStar 430 F   | OR 50 H |
|------------------------|-----------|----------|----------|-------------|-----------------|---------|
| Dishwasher model       | FV 28 GiO | FV 250 B | DV 80.2  | DV 200.2    | EcoStar 530 F-M | GK 60   |
| Lave-vaisselle modèle  | FV 40.2   | FV 130.2 | DV 125.2 | DV 200.2 PW | EcoStar 545 D-M |         |
| Lavastoviglie modello  | FV 40.2 G | FV 250.2 |          | DV 270 B    |                 |         |
| Lavavajillas modelo    | FV 60.2   |          |          | DV 270.2    |                 |         |
| Modelo de lavavajillas | FV 70.2   |          |          |             |                 |         |
| Vaatwasmachine model   |           |          |          |             |                 |         |

### Konformitätserklärung

Declaration of Conformity / Déclaration de conformité / Dichiarazione di conformità / Declaración de conformidad / Conformiteitsverklaring:

**Hiermit bescheinigen wir in alleiniger Verantwortung die Konformität des Erzeugnisses mit den grundlegenden Anforderungen der folgenden EG-Richtlinien, harmonisierten Normen, nationalen Normen.**

We hereby declare at our sole responsibility that the product conforms to the essential requirements of the following EC Directives, harmonized standards, national standards.

Par la présente nous certifions sous notre seule responsabilité la conformité du produit avec les exigences fondamentales des directives CE, normes harmonisées et normes nationales suivantes.

Con la presente dichiariamo sotto la nostra responsabilità la conformità del prodotto con i regolamenti basilari delle seguenti direttive CE, normative armonizzate e normative nazionali.

Por la presente declaramos bajo nuestra sola responsabilidad que nuestros productos están en conformidad con las exigencias básicas de las siguientes directivas la CE, normas homologadas y normas nacionales.

Hiermee verklaren wij onder geheel eigen verantwoordelijkheid de conformiteit van het product met de fundamentele en gestelde eisen volgens EG-richtlijnen, geharmoniseerde normen en nationale normen.

**EG-Richtlinie** / EC Directive / Directive CE / Regolamento CE / Directiva CE / EG-richtlijn

**2006/42/EG / 2006/95/ EG / 2004/108/EG**

**Dokumentationsverantwortlicher:** Responsible for documentation / Responsable de la documentation / Responsabile della documentazione/ Responsable de la documentación / Voor deze documentatie verantwoordelijk

Daniel Ratano

MEIKO Maschinenbau GmbH & Co. KG, Englerstr. 3 – 77652 Offenburg - Germany

**Unterschrift** / Signature / Signature / Firma / Firma / Handtekening

**Konstruktion** / Design Engineering Department / Dpt. Construction / Reparto Costruzione / Depto. de diseño / Constructie

**MEIKO Maschinenbau GmbH & Co. KG**

ppa.  
(per procura)

**Dr. Thomas Peukert**

(Leiter Entwicklung und Konstruktion)

Head of Development / Design / Responsable Développement / Construction / Direttore Sviluppo / Costruzione / Jefe de la sección de desarrollo y diseño / Chef Ontwikkeling/Constructie





## 5 General safety instructions

### 5.1 Operator's obligation for care



The dishwashing machine has been constructed based on a risk analysis and after careful selection of the applicable harmonized standards, as well as additional technical specifications. It therefore corresponds to the latest technology and is guaranteed to provide maximum safety.

This level of safety can only be achieved in practice, however, if all the necessary measures are taken. The operator of the installation has an obligation of care to ensure that these measures are scheduled, and also to check that they are correctly executed.

### Measures to ensure the safe machine operation:

#### The operator must ensure in particular that ...



... the washing machine is only used in accordance with the regulations.

Should it be used in any other way, damage or danger may occur, for which we accept no liability (see the chapter on "Use for the Purpose Intended").



... in order to preserve the operational and safety guarantees, whenever required, only original parts supplied by the manufacturer are used.

the user will lose the right to any possible claims if the appliance is modified using any parts other than original parts.



... only appropriately qualified and authorized personnel use, maintain, and repair the installation.



... the relevant personnel is regularly trained in all questions relating to safety at work and environmental protection and, in particular, that they are familiar with the operating instructions as well as with the safety information provided in them.



... the installation is only operated in perfect, operationally efficient condition, all safeguards and cladding panels are installed, and, in particular, that the safety systems and switch elements are regularly checked for their operational efficiency.



... machines accessible only from behind may be operated only with rear panel cladding.



... the required personal protective equipment is made available to maintenance and repair personnel, and is worn by them.



..... a functional test on all safety systems of the machine / installation is carried out during every regular maintenance.



... the operating instructions are always kept in legible, complete condition at the place where the installation is installed, and are always at hand.



.... any necessary initial tests to parts supplied by sub-suppliers must be carried out. More detailed information, if required, can be found in the relevant Instructions for Use.



Once the Multi washer has been installed, put into service and handed over to the customer/operator, no modifications (electrical or location modifications, for example) may be made. Modifications to the cleaning machine, and in particular technical modifications carried out without the manufacturer's written authorization, or any modifications carried out by unauthorized persons, will lead to the complete loss of any guarantee claims and will invalidate any liability for the product.



... equipment for optimising energy consumption must not be used to reduce essential operating temperatures, as set out in DIN 10510, 10511 and 10522. If you, the client, install equipment for optimising energy consumption, any possible reduction in the quality of the wash and hygiene is your responsibility.



## 5.2 Basic safety measures



Danger can arise from the improper use of the machine or if it is used for purposes for which it was not intended.

Parts carrying electric current as well as moving or rotating parts can cause

- Dangers to the user's life and limb and
- Material damage



The machine may only be operated by adequately qualified staff who have been trained by the operating company and who have been trained about the Hazard and Safety Instructions.

Qualified staff, as defined by the Operating Instructions, are persons:

- who are over 14 years of age,
- who, because of their training, experience, instruction and knowledge of the relevant standards, regulations, accident prevention instructions and operating conditions, have been authorised by the person responsible for the safety of the machine to carry out the necessary activities, and who therefore are aware of the possible dangers and how to avoid them,
- who have been trained in first aid and in the on-site rescue arrangements,
- who have read and who observe the safety instructions,
- who have read and who observe the Operating Instructions (or the part applicable to the work to be carried out).



The machine operates with hot water. The machine operates with hot water (Temperature of wash water = 58-60 °C, by Cleaning and disinfection machine must be 74 °C). Avoid all contact with the rinse water. Danger of scalding/burning! The washed items as well as the components in contact with the wash water have the same temperature.

Please observe appropriate protective measures.

Observe all the instructions posted on the machine.



### **Warning !**

When electrical equipment is in operation, it is inevitable that certain parts carry a dangerous current.

Before the machine's cover plates or an electrical device are opened it is imperative the entire machine is switched off completely via the on-site power disconnection device and that it is secured against reactivation by using appropriate measures.

Only specialist personnel may carry out repairs and rectification work on the electrical part of the machine. The Health and Safety Regulations must be observed.

The machine may be used again only after **all cladding panels** have been installed by the user of the machine.



The machine may **not** be sprayed with a water hose or high-pressure cleaner.



The machine must only be operated under the supervision of instructed staff.



The water in the wash-up area is non-potable and can't be used for food preparation!



If you are unsure about the operation of the machine, the machine must not be used.





Do not place any solvents or other easily flammable substances in the wash-up area, as this increases explosion hazard



The appliance must not be used to transfer waste water from other sources into the drain.



Steel scrub pads are not to be used for the pre-scouring nor for cleaning the items to be washed.

Do not wash any metal items in the machine which are not made of stainless steel.

The in-coming of metal parts (especially iron, tinplate, copper) must absolutely be avoided.

The appliance must not be used to transfer waste water from other sources into the drain (Warning: risk of corrosion and blockage).

Only use suitable products for cleaning the stainless steel surfaces, which do not attack the material, form any deposits, nor cause any discolorations. They must not attack the metal, form any deposits and cause discoloration.



Door and flaps **MUST** be closed.

Do not place anything on the open door of the appliance, resp. no heavy loads, as the machine could tip over!

Open the door very carefully during the programme cycle, as otherwise wash water could splash out.



The tank heating element may still be hot after the tank has been emptied. There is therefore the danger of burns when the machine is cleaned manually.



Only detergents and rinse-aids suitable for the use in industrial dishwashers may be used.

Corresponding information is submitted by the manufacturers of such products.

Detergents and rinse agents can be injurious to health.

The manufacturers hazard instructions on the original packaging and in the safety data sheets must be observed.



At the end of operation the machine is to be switched off completely with the on-site power disconnection device.

The accompanying Operating Instructions must be observed for accessory devices, e.g. water treatment installations.



**WE ACCEPT NO LIABILITY FOR DAMAGE OR INJURY  
ARISING FROM FAILURE TO OBSERVE AND ABIDE BY  
THESE SAFETY INSTRUCTIONS!!!**

### 5.2.1 Working on electrical equipment



Any repair work and repairs to the power supply on the installation's electrical equipment may only be carried out by a qualified electrician!

Check the electrical equipment regularly! Tighten any loose connections! Replace any damaged leads/cables immediately!



## 6 Delivery, shipping, installation and assembly

### 6.1 Delivery

Check that the delivery is complete immediately after receiving it by comparing it to MEIKO's contract confirmation and/or the delivery note.

If necessary, complain about any missing parts immediately to the shipping company and notify MEIKO.

Examine the appliance for possible transit damage.



Should you suspect any damage has occurred during shipping, you should inform:

- the shipping company,
- and MEIKO

in writing, and also send a photo of the damaged parts to MEIKO.



Damaged appliances must not be commissioned.

### 6.2 Transport, installation and assembly

In order to avoid damage or life-threatening injuries during shipping of the installation, the following points must be observed:



- The shipping operations may only be carried out by qualified persons who observe the safety instructions.
- Observe transport instructions on the packing.
- The appliance must be moved with great care.
- Unpack the machine.

In order to ensure safe shipping, the installation parts are placed on a special four-sided wooden frame.

Incoming goods should only arrive on these wooden frames. Incoming goods should only arrive on these wooden frames. The packing is specifically designed to allow the appliances to be moved safely and securely using a pallet truck.

The enclosed technical sheet indicates the connection and consumption ratings of the appliance.



Small quantities of steam may escape from the door of the appliance. Furniture and equipment situated near the door must be protected.



An engineer from your local MEIKO Service Centre can install the appliance at the correct point and connect the tables - upon request. An engineer from your local MEIKO Service Centre can install the appliance at the correct point and connect the tables - upon request.

The following must be observed during the installation of the dishwashing machine:

- The complete unit must be levelled in both directions using a water level.
- Compensate for an uneven floor by adjusting the feet.
- Table joints must be sealed with detergent-resistant sealing compound (e.g. silicone).



## 6.3 Operating conditions

It is taken for granted that the planning of the system, as well as installation, setting in operation and maintenance works are executed by sufficiently instructed staff and that these works are checked by responsible specialists. The indications on the name plate of the machine must correspond to the technical sheet and the local connection conditions.

Conditions to be provided by the customer:

- Frost free storage and installation area
- Electrical connection in accordance with the technical sheet
- Fresh water connection in accordance with the technical sheet
- Waste water connection in accordance with the technical sheet
- Anti-slip floor coverings should be provided around the washing appliance.

### 6.3.1 Requirements for the installation area

- Ensure that the storage and installation area is permanently frost free.

The machine is only frost-resistant in the state it is delivered or when provided with special features (option: frost drainage). If the appliance is installed in an area where the surrounding temperatures are below freezing point, the water freezing inside can damage the internal water components such as pump, solenoid valve, boiler, etc.



## 6.4 Requirements for the electrical connection

Work on the electrical part of the machine may only be undertaken by specialist personnel.



The customer must guarantee the following points relating to the connection:

- The correct voltage and type of current must be available
- Safeguard the power supply cable according to regulations and provide it with a power disconnection device in the fixed electrical installation.
- The machine must be connected to the potential compensation system!
- If an unearthed neutral (N) is used with alternating current, the power disconnection device must have 4-poles (with alternating current 2-poles).
- For connection to three-phase current a 5-pole terminal strip (L1, L2, L3, N, PE) must be used.
- Electricity supply without neutral conductor (N): when connecting to three-phase current, use a 4-pole clamping strip (L1, L2, L3, PE).
- Conductor colors: live conductor L1 = black/1, L2 = brown/2, L3 = grey/3, neutral conductor N = blue/4, protective earthing conductor PE = green-yellow.

Current applicable standards and requirements of local utility companies are to be adhered to with regard to protective measures and connection of the potential compensation system.

The products are intended for permanent connection to the on-site power supply and have been tested for the market accordingly. Any other form of electrical connection is to be established by a licensed electrician.

Do not protect by fuses any additional consumers together with the dishwashing machine.

- All conductor fixing screws must be re-tightened before commissioning the appliance.



The wiring diagram is behind the front panel, resp. front cladding of the appliance. The enclosed wiring diagram must remain in the appliance.



## 6.5 Requirements for the fresh water connection

Each appliance carries the DVGW test symbol and does not require an extra safety valve in the water feed.

- Fresh water connection must be made according to EN 1717 or according to local regulations.
- The requirements of the clean water supply in the accompanying GiO module operating and service manual are to be observed for machines equipped with the GiO module.



The minimum flow pressure of the clean water supply upstream of the solenoid valve must be 0.6 bar; if water-softening (AktiveClean) equipment is incorporated into the machine, it should be 1 bar; and for machines equipped with the GiO module it should be 1 bar.

The maximum pressure must not exceed 5 bar.

- If the flow pressure is below the minimum, increase the flow pressure with a booster pump; if the maximum pressure is exceeded, limit it with a pressure reducer. Corresponding instructions are contained in the installation drawing. Therefore suitable measures must be taken.
- Suitable protective measures must be taken to ensure that no iron particles can enter the appliance via the mains water supply. Similarly, precautions must be taken to prevent the entry of other metal particles, for example copper turnings.
- The warewasher is equipped with a built-in reverse osmosis unit (GiO-module). In this reverse osmosis unit the fresh water supply is compressed onto membranes under high pressure. Pure water is pressed through this membrane and is directed toward the boiler. This water is used to fill up the warewasher and is used for rinsing, ensuring that the items being washed are free of water spots. A portion of the fresh water is drained along with the rest of the substances in the water (e.g. salts, minerals, particulate matter) as so-called concentrate. Observe the specifications in the technical data sheets in order to ensure the maximum possible service life of the membranes.



A fine filter is included in the connection set. The filter is filled with a activated carbon in order to protect the osmosis unit. The filter cartridge containing the activated carbon must be renewed every six months.

## 6.6 Requirements for the waste water connection

- Build an odour trap into the waste water connection if this is not already built-in (further information about this is in the Installation drawing / Technical Sheet).
- The drain hose must be connected to the waste water pipe in the building.
- A grease trap may be needed, depending on the machine application.
- The requirements of the waste water supply in the accompanying GiO module operating and service manual are to be observed for machines equipped with the GiO module.

### 6.6.1 Waste water discharge from the reverse osmosis unit

- The waste water outlet from the reverse osmosis unit must not be closed. This will damage the unit in a very short time.

## 6.7 Emergency-off

- Switch the machine off completely via the on-site power disconnection device.





## 6.8 Chemicals for the operation of the appliance

Only alkali detergents and acid rinse agents suitable for use in commercial dishwashers may be used. Corresponding information is submitted by the manufacturers of such products.

MEIKO recommends brand cleaning products from leading manufacturers.



- cleaning and hygiene products are an excellent choice.

If unsuitable products are used, the life expectancy of the dosing units can be reduced considerably. Observe the dosing instructions of the manufacturer.

Detergents and rinse-aids can present a health hazard if they are not correctly used. Please observe the manufacturers' instructions on the original packing and on the safety data sheets.

"Items for rinsing are tribologically influenced in particular by chemicals and increased temperatures during the process, as well as mechanical stresses caused by handling and transporting."

If a de-scaling agent is used, please strictly observe the manufacturer's instructions reg. handling and safety. After having used such an agent, the product must be completely removed from the machine, as even small residues are sufficient to destroy plastic parts and packing materials.

### Chemical product settings

The correct settings for the quantity of detergent and rinse agent depend on the product used. The relevant chemical supplier can install the correct setting.

## 6.9 Instructions for the disposal of the packaging material

- The four-sided wooden frame consists of untreated, raw wood.  
Special country-specific import regulations may also stipulate the use of wood which has been treated against pests.
- The plastic sheeting (PE sheeting) may be recycled.
- The cardboard packaging material used to protect the edges can also be recycled.
- The steel tensioning strap made of strip steel may be recycled with the steel scrap.
- The plastic tensioning strap of plastic (PP) can be recycled.

## 7 Settings for initial commissioning by the service engineer

### 7.1 Commissioning

In order to avoid damage to the installation and the injury and death of persons when commissioning the installation, the following points must be observed without fail: Any necessary initial tests to parts supplied by sub-suppliers must be carried out. More detailed information, if required, can be found in the relevant Instructions for Use.



- The installation may only be commissioned by suitably qualified persons observing the safety instructions.
- Before initial startup, check that any tools and parts not belonging to the installation have been removed.
- Check whether any escaping liquid is removed.
- Activate all the safety systems and door switches before commissioning.
- Check that all screw connections are tight.
- Please also read the chapter on "General safety instructions".
- Commissioning and instructions will be provided by technicians specially trained by Meiko. The operator may only use the installation after training has been provided.
- The "Commissioning certificate for GiO modules" is to be observed for machines equipped with the GiO module and the instructions adhered to accordingly.



## 8 Washing with dish-washer



The appliance must not be used without a thorough knowledge of the "Operating Instructions". Incorrect operation could result in injuries to personnel or damage to the appliance.

### 8.1 Operating panel

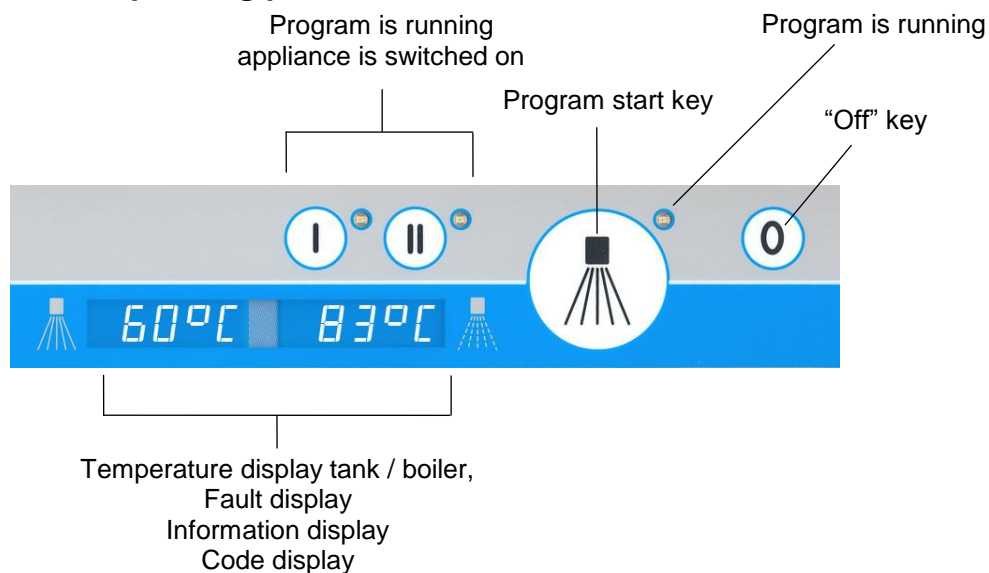


Illustration 1; Operating panel







| Key / display   | Meaning  |
|---|--|
|  | Short program – Wash programme I                   |
|  | Normal program – Wash program II                   |
|  | Wash temperature                                   |
|  | Final rinse temperature                            |
|  | Program start<br>Tank drain<br>Self-cleaning cycle |
|  | Switch off appliance/<br>Cycle interruption        |

Table 1; Program key function / items to be washed



## 8.2 Preparation for washing and rinsing

The preparatory work described below must be carried out before each operation.



- Open the door.
- Place the screen and stand pipe in position.
- Close the door.



**ATTENTION!** Danger of crushing.  
Close the door with both hands.



- Switch on the appliance by pressing one of the program pre-selection keys.
- During the filling and heating phase, the light above the pre-selection key will flash.  
When the light remains constantly lit, the machine is ready for operation.

The time until the operation readiness is reached depends on the temperature of the supplied water and the installed boiler, resp. tank heating capacity.

In the case of cold water supply, the time taken is: about 25 minutes.

## 8.3 Automatic dosing

The required detergent and rinse aid is moved from the containers into the tank or boiler via electronically controlled dosing units.

If unsuitable products are used, the life of the dosing equipment will be significantly shortened.

We therefore recommend that detergents should have a pH value greater than 7 and that rinse agents should have a pH value between 7 and 2.



## 8.4 Operation during washing and rinsing cycle



The following fundamental principles must be observed when placing the items to be washed in the baskets:

- All hollow containers must always to be **loaded upside down**. Otherwise the water will be trapped inside and they will not dry to a brilliant finish.
- Plates should always stand at a slight angle **in the basket**. The inside faces pointing upwards.
- When using cutlery baskets, ensure that cutlery is always inserted handle down.
- Load the cutlery baskets with a **mixture** of spoons, knives and forks, as identical items of cutlery can be too close together.
- Do **not overload** the baskets.
- **Do not stack** the dishes in the wash basket directly on top of each other. As the wash water could not strike the items directly and unnecessarily long wash times would have to be selected. Short wash times with baskets which are not overloaded are much more economical.



Program start key



### 8.4.1 Start the wash cycle

- Place the items in the basket.
- Place the basket in the appliance, ensuring that it is correctly centred.
- Close the door.
- Press the program start key.

The appliance cleanses and rinses automatically and switches off the wash program after completion. The program cycle is indicated by a light on the program start key.

The wash time can differ from the set program time if the boiler heating capacity is not sufficient for heating up the fresh water to the pre-set boiler temperature during the program time. In this case, the automatic wash time extension is activated.



### 8.4.2 Remove the cleaned items

- When the light goes out, open the door and remove the basket..

## 9 Shutting down the dishwasher

“Off” key



- Press the "0" key (OFF key). The machine is switched off when all the lights are out
- Remove the stand-pipe.

Program start key



- Press the program start key to drain the tank.
- The tank interior is sprayed with clean hot water after the tank water has been drained. The door must remain closed. The waste water pump switches off automatically.

## 10 Care and maintenance

### 10.1 Care, general

The appliance has been designed to minimise the need for cleaning, care and maintenance.

However, for a reliable, safe and permanent function of the appliance and in the interest of hygiene and cleanliness a correct care and maintenance is necessary.

To facilitate this procedure, a maintenance contract can be concluded with the manufacturer or the manufacturer's agent.

Works/repairs which were not correctly executed and the use of unauthorised parts by unqualified personnel endanger both operators and the appliance, and will invalidate the warranty.



CAUTION!

### 10.2 Refilling of detergent

There are two different types of detergent containers:

#### Incorporated container

The storage container is translucent white in colour and is located in the lower part of the stationary dishwashing machine. The lid can be opened after the container has been removed from its position.

- Re-fill the container marked "detergent" if necessary.



### External container

The container is located next to the appliance.

- Check the filling level of the container and if necessary, replace it by a full one.

Only non-foaming alkali detergents (pH > 7) suitable for commercial dishwashers may be used.

Detergent dosing units must be checked to see if they are functioning properly if there is reason to believe that they are malfunctioning. Carry out a visual inspection!



## 10.3 Refilling with rinse aid

There are two different types of rinse aid containers:

### Incorporated container

The storage container is translucent blue in colour and is located in the lower part of the stationary dishwashing machine. The lid can be opened after the container has been removed from its position.

- Re-fill the container marked "rinse-aid" if necessary.

### External container

The container is located next to the appliance.

- Check the level and, if necessary, replace the container by a full one.

Only non-foaming acid rinse aid (pH < 7) suitable for commercial dish/ and glasswashers may be used.

Detergent dosing units must be checked to see if they are functioning properly if there is reason to believe that they are malfunctioning. Carry out a visual inspection!



## 10.4 Cleaning

After the tank has been drained, proceed as follows:

- Do not use a foaming detergent for dish-washing by hand for pre-cleaning close to the dish-washer. Foam can cause malfunctions in the dish-washer and a poor wash.
- Food residues sticking to the tank, tank heating element and sieves must be removed with a brush.
- Dismantle the wash arms and rinse them under running water.
- Wash nozzles must be cleaned daily.
- The cleanliness of final rinse nozzles must be checked weekly and if necessary clean under running water.



The inserts for the final rinse nozzles must be inserted with the prongs facing the water flow.

### 10.4.1 Safety instructions for cleaning

The tank heating element may still be hot after the tank has been emptied. There is therefore the danger of burns when the machine is cleaned manually.



The machine, switch cabinet and other electrical components must NOT be sprayed with a hose or a high pressure cleaner.



## 10.5 Maintenance of stainless steel surfaces



The appliance is made of high-quality stainless steel. Nevertheless, under special circumstances, corrosion may occur.

To maintain stainless steel surfaces permanently free from corrosion use

- only cleaning products which are properly.

Use only products which do not attack the material, build up a film or cause discoloration.



## 10.6 Filter cartridge with activated carbon

The filter cartridge must be renewed every six months in order to protect the osmosis unit. Activated carbon decreases the layering of chlorine and bacteria on the membrane surface. This increases the functional time of the membrane.



## 11 Basic information on the appliance



Each dishwashing machine is manufactured acc. to the latest state of the art technology. Operation is safe.

Dangers could arise from this model, if it is not correctly operated by unsuitable operating staff or if it is not used acc. to its purpose.



### Liability

We accept no responsibility for damage of the appliance and other objects caused by operating faults, resp. non-observance of the operating instructions. Any modifications to the appliance - especially technical modifications inside - undertaken by unauthorised persons without the written permission of the manufacturer will invalidate the warranty.

## 11.1 General description of the washing machine

### 11.1.1 Execution

Stationary square basket, 400x400 mm

### 11.1.2 Wash principle

The appliance has one wash and one final rinse cycle.

A centrifugal pump circulates the water out of the cleaning tank into the clean nozzles. The water jets reach the items to be cleaned out of differing directions. Therefore an even cleaning result can be guaranteed.

The cleaning cycle is followed by the fresh water final rinse. The items are rinsed via a separate nozzle system with hot fresh water at approx. 65° C for glass and at approx. 83° C for dishes and cutlery. Thus heating up the items for the following drying process. At the same time the final rinse water serves for the regeneration of the wash water, the level of soil of the wash water thus being reduced.



### 11.1.3 Detergent dosing

The detergent dosing unit is designed for the automatic addition of liquid alkaline detergent to the clean water.

The detergent is transported out of the container into the clean tank by means of a hose line. The dosing unit is self-priming. The dosing is effected during each filling cycle and at the beginning of each programme cycle using timer control.



Normally, a dosing of approx. 2 ml of detergent per liter of tank water is the correct concentration. This can be increased/reduced acc. to the water quality, items to be washed and degree of soiling to 5 ml/l or to 1 ml/l.

**Please observe dosing's instructions of manufacture's detergent!**

### 11.1.4 Rinse aid dosing

The rinse aid dosing unit is designed to automatically add liquid final rinse aid into the fresh water.

The rinse aid is transported out of the container into the fresh water supply line by means of a hose line. The dosing unit is self-priming. The dosing takes place during each filling cycle using timer control.



The correct dosing results in a smooth, even water film. In case of overdosing, there are bubble and stripe formations - reduce dosing. In case of under-dosing, water drops remain on the washed items - increase dosing.

## 11.2 Noise level

Work place noise level  $L_{pA} \leq 70$  dB

## 11.3 Data reg. the electrical and hydraulic equipment

See attached technical sheet

## 11.4 Dimensions, technical data, installation instructions

See enclosed documentation papers.

## 12 Non-ionizing radiation

Non-ionizing radiation is not produced intentionally but unfortunately comes about due to electrical operating equipment (e.g. electrical motors, high-voltage cables and magnetic coils). In addition the machine has no strong permanent magnet. There is a high possibility of eliminating the influence of active implants (e.g. pacers, defibrillators) by maintaining a safety distance of 30 cm (distance of the field source to the implant).



### 13 Tips for self-help in the case of faults

| Fault:   | Possible cause   |
|--|--|
| <b>Machine does not fill.</b>                                      | <ul style="list-style-type: none"> <li>• No water available</li> <li>• Fine filter blocked</li> <li>• Membranes blocked in the reverse osmosis unit.</li> <li>• Level switch defective</li> <li>• Solenoid valve defective</li> <li>• Door safeguard defective</li> </ul>  |
| <b>Rinse water does not spray!</b>                                 | <ul style="list-style-type: none"> <li>• No water available</li> <li>• Fine filter blocked</li> <li>• Membranes blocked in the reverse osmosis unit.</li> <li>• Solenoid valve defective</li> <li>• Booster pump has failed</li> </ul>   |
| <b>Stripes and smears on the dishes!</b>                           | <ul style="list-style-type: none"> <li>• Rinse water mineral content too high by defective membranes</li> <li>• Unsuitable rinse aid products or wrong dosage quantity</li> </ul>  |
| <b>Formation of a significant amount of foam in the wash tank!</b> | <ul style="list-style-type: none"> <li>• Detergent for dish-washing by hand enters the wash tank because of pre-cleaning the dishes</li> <li>• Daily cleaning is carried out with foaming cleansing agents which afterwards enter the machine.</li> <li>• Improve pre-wash, as too much food residue is entering the tank. Alternatively, empty wash tanks between uses.</li> <li>• Rinse water quantity too low</li> <li>• Detergent or rinse aid product not suitable</li> <li>• Temperatures too low &lt; 40°C</li> </ul> |



## 14 Staff training

Only trained and instructed personnel are allowed to work on the dishwashing machine. Staff responsibilities for the installation's operation, maintenance and repair must be clearly defined.

Any personnel undergoing training are only allowed to work on the dishwashing machine installation under the supervision of an experienced person.

| <b>Persons</b><br><b>activity</b> | <b>Trained operating personnel</b> | <b>Trained in-house technician</b> | <b>Trained in-house technician or installation engineer</b> |
|-----------------------------------|------------------------------------|------------------------------------|---|
| Installation and assembly         |                                    |                                    | ◆   |
| Commissioning                     |                                    |                                    | ◆   |
| Operation, use                    | ◆                                  | ◆                                  | ◆   |
| Cleaning                          | ◆                                  | ◆                                  | ◆   |
| Checking safety devices           | ◆                                  | ◆                                  | ◆   |
| Fault finding                     |                                    | ◆                                  | ◆   |
| Troubleshooting, mechanical       |                                    | ◆                                  | ◆   |
| Troubleshooting, electrical       |                                    |                                    | ◆   |
| Maintenance                       |                                    |                                    | ◆   |
| Repairs                           |                                    | ◆                                  | ◆   |

Training should be recorded in writing.

## 15 Authorized user of this documentation

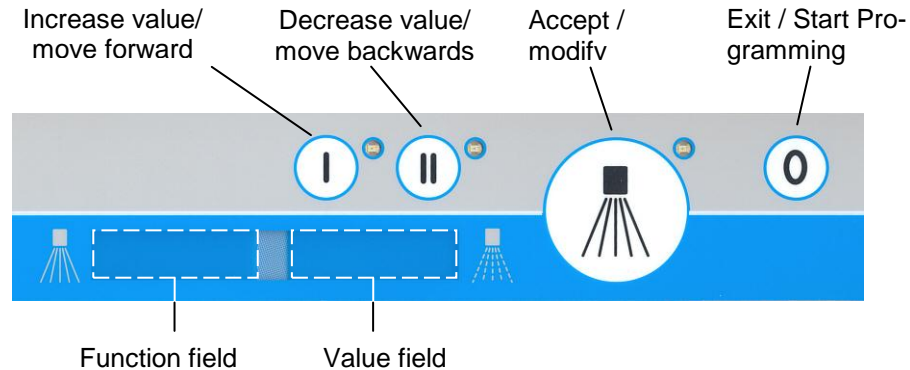
The works described in this booklet (chapter 16 - 19) may only be carried out by specialists of the manufacturer, the responsible agency or an authorized dealer.





## 16 Settings / modifications / on-site adaptation

### 16.1 Using the keyboard for programming



Access codes for various user-levels have been defined. Once the complete code has been entered, the entered code is compared with the internal code table. Depending on the code entered, the corresponding user level will be accessed. 2 access codes are available for each user level; the first is for restricted access, i.e. no modification of parameters is possible (viewing mode), and the second gives access to the entire range of functions (viewing and modification).

In the short programming instructions accompanying every machine in the series, this is described in condensed form.

For control programming, the power supply must be available but the machine must be completely switched off (no LED must be illuminated).

#### Code entry:

|                          |            |
|--------------------------|------------|
| View service data:       | CODE 10000 |
| Modify service data:     | CODE 10001 |
| View configuration data: | CODE 20000 |

The code numbers for the further levels can be found in the Service Manual.

### 16.2 Code entry

To get into the code entry mode, you should keep the key "0" pressed (for around 3 seconds) until you see



By pressing the key "0" once again you can leave the programming area at any time.

The digit to be modified will flash.

Press the "I" key to increase the value/code indicated on the display unit, or press the "II" key to decrease it, or press the "accept" key to save it. The next value will then flash and will be the only one visible.





If your entry is incorrect you will exit the code entry procedure, and the information code 122 will be displayed.



If you enter all the digits correctly you will arrive at the chosen level, either service, configuration or machine data.

### 16.3 Service level

The list of service parameters can be found on this level (parameter numbers 1xx). Here you can view these or modify them, or you can also call up the ventilation of the rinse and wash hoses.

On the service level, you will first see the display below:



This corresponds to the viewing/modifying parameters (see 16.3.1)



This corresponds to rinse aid inlet ventilation (see 16.3.2)



This corresponds to detergent inlet ventilation (see 16.3.3)

Press the "I" key to move forwards or the "II" key to move backwards or the "accept" key to make a selection. You are now at the current level.

You can leave this level by pressing the "0" key.

#### 16.3.1 View/modify parameters

Indication



this display by pressing the "accept" key.

Now, the first parameter will be displayed with a value.



Press the "I" key to go forwards and the "II" key to go backwards, until the parameter you require is displayed.

Confirm the parameter to be modified by pressing the "accept" key, the value will flash. Increase the value using the "I" key or reduce it using the "II" key and confirm with the "Accept" key.

You can leave this level by pressing the "0" key.

See 16.4 for list of parameters.



### 16.3.2 Ventilating the rinse aid inlet



this display by pressing the "accept" key.

Now the dosage pump will be activated and the remaining running time will be indicated.



You can leave this level by pressing the "0" key. The ventilation will be interrupted off.

### 16.3.3 Ventilating the detergent inlet



this display by pressing the "accept" key.

Now the dosage pump will be activated and the remaining running time will be indicated.



You can leave this level by pressing the "0" key. The ventilation will be interrupted off.

Should the ventilation process be insufficient, repeat the process.



The function "vent detergent pipe" is not existing with machines including detergent dosing system type **ADT** ('Advanced Dosing Technology with depression dosing'). The detergent dosing pipe is vented automatically when the first cycle is running, after filling of the detergent reserve container.

### 16.3.4 Configuration level

You can find the list of configuration parameters on this level (parameter numbers 2xx). Here you can view these and modify them. You can also call up the status of the inputs and outputs, or set the outputs for testing.

On the configuration level, you will first see the display below:



this corresponds to the viewing/modifying parameters. (see 16.3.5)



This corresponds to viewing the status of inputs. (see 16.3.6)





This corresponds to viewing and setting the status of outputs. (see 16.3.7)

Press the "I" key to move forwards or the "II" key to move backwards or the "accept" key to make a selection. You are now at the current level.

You can leave this level by pressing the "0" key.

### 16.3.5 Viewing / modifying parameters: (depending on the code entered)

Indication



this display by pressing the "accept" key.

Now, the first parameter will be displayed with a value.

Press the "I" key to move forwards or press the "II" key to move backwards, until the parameter you require is displayed.

Confirm the parameter to be modified by pressing the "accept" key, the value will flash. Increase the value using the "I" key or reduce it using the "II" key and confirm with the "Accept" key.

You can leave this level by pressing the "0" key.

See 16.4 for list of parameters.

### 16.3.6 Viewing input status:

Indication



this display by pressing the "accept" key.

Now, the first digital input will be shown, with status.



Use the "I" to go forward and the "II" to go backward until the desired input is displayed

Display: input set



Display: input not set



You can leave this level by pressing the "0" key.





The direct value (here the boiler temperature) is displayed for the analog inputs. Use the "I" to go forward and the "II" to go backward until the desired input is displayed

Assignment details for the inputs are given on the assignment list for each machine. (siehe 16.5).

### 16.3.7 Viewing / modifying output status (according to code entered)

Indication



this display by pressing the "accept" key.

#### Viewing:

Now, the first output will be shown, with status.



Press the "I" key to move forwards and the "II" key to move backwards, until you reach the output you require.

#### Modifying:

Press the "accept" key to confirm the modification of the output, the value will flash. Press the "I" key to modify the value and press the "accept" key to save it.

The output is now set.



You can leave this level by pressing the "0" key.

Assignment details for the outputs are given on the assignment list for each machine. (siehe 16.5)



## 16.4 Parameter list

| Par. No. | Configuration options                        | Use as     | value range  | Unit           | Factory setting | Note  |
|----------|--|------------|--------------|----------------|-----------------|---|
| 101      | Wash program Key 1                           | Parameters | 1 ...50      | -              | 3               | Allocate the wash program to the key I<br>Assignment adjustable   |
| 102      | Wash program Key 2                           | Parameters | 1 ...50      | -              | 11              | Allocate the wash program to the key II<br>Assignment adjustable  |
| 103      | Wash program Key 3                           | Parameters | 1 ...50      | -              | 13              | Assign rinse programme -no. of the key I+II pressed together;<br>Assignment adjustable  |
| 104      | Rinse agent Dosing quantity                  | Parameters | 0.10 ...1.00 | ml/Liter water | 0.2             | Value can be read from the rinse aid container label (dependant on water quality)   |
| 105      | Rinse program Dosing quantity                | Parameters | 0.1...20.0   | ml/Liter water | 2.0             | Value can be read from the detergent container label (dependant on water quality)   |
| 107      | Beep ON/OFF                                  | Parameters | 0/1          | -              | 1               | Switch on/off acoustic ready message  |
| 111      | Total Operation time Indication              | Indication | 5 figures    | h              |                 | Operation time query only   |
| 112      | Total number of wash cycles                  | Indication | 5 figures    | -              |                 | Wash cycles/loads, query only   |
| 113      | Total number of wash cycles since last reset | Indication | 5 figures    | -              |                 | Wash cycles/loads, re-setting possible  |
| 114      | Serial number                                | Indication | 8 figures    | -              |                 | Option for calling the serial number  |
| 119      | IR-communication                             | Parameters | 0/1          | -              | 1               | It is possible to shut off communication via IR interfaces. (0)   |
| 120      | Total number of wash cycles Indication       | Parameters | 0/1          | -              | 0               | Effective only upon power supply reset ON/OFF<br><b>ATTENTION!</b> All changes to service parameters will be reversed.<br>Power supply reset must be carried out within 5 minutes, otherwise factory settings will not be loaded.<br>Without power supply reset, the information 123 will be displayed. |
| 201      | Machine type                                 | Parameters | 101 ...104   | -              | 101             | 101: EcoStar E/A1 (with FA, EW)<br>102: EcoStar E/A2 (minimal)<br>103: EcoStar E/A1 (with new dosing technology / ADT)<br>104: EcoStar with TL or A0<br>Attention! Only assignment list and machine sequences change – no parameters  |



| Par. No. | Configuration options                   | Use as     | value range | Unit | Factory setting | Note  |
|----------|---|------------|-------------|------|-----------------|---|
| 202      | Must be-tank temperature                | Parameters | 10 ...82    | °C   | 60              | Standard for all the rinse programs on one appliance! Output dependent on definition.   |
| 203      | Pre-rinse time                          | Parameters | 0 ...8      | sec. | 0               | See pre-rinse process step  |
| 204      | Post-rinse time                         | Parameters | 4.0 ...25.0 | sec. | 8.0             | Duration of final rinse time, running time limited by P306!!  |
| 205      | Operation indicator                     | Parameters | 0 ...10     | -    | 1               | Definition of the information which is to be switched via the potential-free contact<br>0 – no information<br>1 – Filling/Heating, ready for washing/washing or draining<br>2 – Filling/Heating, ready for washing/washing<br>3-Filling / Heating<br>4 - ready for washing<br>5 - Washing<br>6 - Draining<br>7 - Error<br>8 – Not status machine OFF and draining<br>9 - EW active<br>10 - not status Machine OFF |
| 218      | Shortage of rinse aid                   | Parameters | 0/1         | -    | 0               | Monitoring Indication   |
| 219      | Shortage of detergent                   | Parameters | 0/1         | -    | 0               | Monitoring Indication   |
| 224      | Power supply mode                       | Parameter  | 0 ...3      | -    | 1               | Definition: Energizing rinse aid pump:<br>0 – no signal<br>1 – energizing according to calculated running time<br>2 - energizing as final rinse<br>3 - energize as wash pump  |
| 225      | Power supply mode detergent dosing pump | Parameters | 0 ...4      | -    | 1               | Definition: Energizing detergent pump:<br>0 – no signal<br>1 – energizing according to calculated running time<br>2 - energizing as final rinse<br>3 - energize as wash pump<br>4 – Option – detergent pump using negative pressure dosing ADT  |
| 240      | Detergent pump activation mode          | Parameters | 0/1         | -    | 0               | Effective only upon power supply reset ON/OFF<br><b>ATTENTION!</b> All changes to service parameters will be reversed.<br>Power supply reset must be carried out within 5 minutes, otherwise factory settings will not be loaded. Without power supply reset, the information 123 will be displayed.  |



| Par. No. | Configuration options         | Use as     | value range | Unit | Factory setting | Note  |
|----------|-------------------------------|------------|-------------|------|-----------------|---|
| 241      | Air gap (FA) incorporated?    | Parameters | 0/1         | -    | 1               | 0: FA not available, final rinse over Y1<br>Measure conductance VE (optional) |
| 242      | Drain pump (LP) incorporated? | Parameters | 0/1         | -    | 0               | 0: LP not incorporated<br>1: LP incorporated                                  |
| 321      | Rinse agent pump output       | Parameters | 0.1 ...10   | l/h  | 1.3             | Rinse agent pump.<br>Output definition.                                       |
| 322      | Detergent pump output         | Parameters | 0.1 ...20   | l/h  | 8.5             | Detergent pump<br>Output definition.  |
| 326      | pipe vent time Rinse agent    | Parameters | 0 ...255    | sec. | 180             | Activate rinse agent pump temporarily to remove air from pipe.                |
| 327      | pipe vent time Detergent      | Parameters | 0 ...100    | sec. | 30              | Activate detergent pump temporarily to remove air from pipe.                  |
| 346      | Indication LED 2 or LED 1     | Parameters | 0/1         | -    | 1               | 0: LED2 with LEDs<br>1: LED1 with temperature display                         |

## 16.5 Assignment list

### View inputs / control outputs

| Indication |     |       | Input / output / other    |
|------------|-----|-------|---------------------------|
| Left       |     | Right |                           |
| dIn        | 1   | 0/1   | Door closed               |
| dIn        | 2   | 0/1   | Boiler level              |
| dIn        | 3   | 0/1   | Tank level                |
| dIn        | 7   | 0/1   | Hall-sensor ADT (option)  |
| dIn        | 9   | 0/1   | Level rinse aid (option)  |
| dIn        | 10  | 0/1   | Level detergents (option) |
| Aln        | 1   | 83°C  | Boiler temperature        |
| Aln        | 2   | 60°C  | Tank temperature          |
|            |     |       |                           |
| out        | 1.1 | 0/1   | Voltage (reverse osmosis) |
| out        | 1.2 | 0/1   | Booster Pump              |
| out        | 1.3 | 0/1   | Operation indicator       |
| out        | 2.1 | 0/1   | Wash pump                 |
| out        | 2.2 | 0/1   | Tank heating              |
| out        | 2.3 | 0/1   | Drain pump                |
| out        | 3.1 | 0/1   | Filling valve             |
| out        | 3.2 | 0/1   | Soft starter valve        |
| out        | 3.3 | 0/1   | Dosing of rinse aid       |
| out        | 3.4 | 0/1   | Detergent dosage          |
| Out        | 3.6 | 0/1   | Boiler heating            |

Leak water switch condition:    Leak water switch must not have operated.



## 16.6 Rinse program parameter update: 01.07.2009

| Program no.: | Boiler temperature target value | Wash time target value |       |
|--------------|---------------------------------|------------------------|-------|
|              |                                 | Washing                | Total |
| 1            | 65                              | 46                     | 60    |
| 2            | 65                              | 76                     | 90    |
| 3            | 65                              | 106                    | 120   |
| 4            | 83                              | 166                    | 180   |
| 5            | 83                              | 196                    | 210   |
| 6            | 83                              | 226                    | 240   |
| 7            | 83                              | 346                    | 360   |
| 8            | 83                              | 46                     | 60    |
| 9            | 83                              | 76                     | 90    |
| 10           | 83                              | 106                    | 120   |
| 11           | 65                              | 166                    | 180   |
| 12           | 65                              | 196                    | 210   |
| 13           | 65                              | 226                    | 240   |
| 14           | 65                              | 346                    | 360   |
| 15           | 85                              | 46                     | 60    |
| 16           | 85                              | 76                     | 90    |
| 17           | 85                              | 106                    | 120   |
| 18           | 85                              | 166                    | 180   |
| 19           | 85                              | 196                    | 210   |
| 20           | 85                              | 226                    | 240   |
| 21           | 85                              | 346                    | 360   |
| 22           | 80                              | 76                     | 90    |



The dosage times will be adapted to the rinse time, so that the correct concentration remains if the rinse time is modified.



## 17 Operating errors

Despite being expertly designed, the machine may develop minor faults which are usually easy to eliminate. This section explains a number of possible problems and how you can deal with them yourself.

Before carrying out work on the open appliance, it **MUST** be disconnected from the power supply. The machine is to be switched off completely with the on-site power disconnection device here.

Should any of the operational faults described arise repeatedly, their cause must be established in each case.

Faults not described here can in general only be eliminated by a technician or electrician. Please contact the agency responsible or the authorised dealer.



### 17.1 Information reporting and troubleshooting

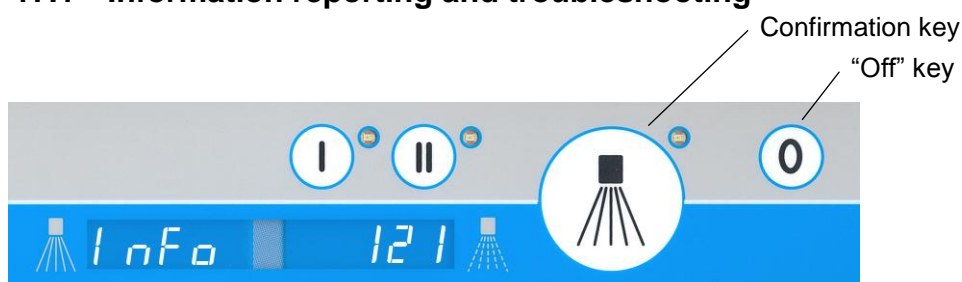


Figure 2: Information display

Information displays can be cleared by pressing the confirmation key.

Provided that the machine function is restored, the next program sequence will begin.

The information display can also be deleted by pressing the "Off" key.

Information indicator (extract)

| Info No. | Description  | Possible cause   |
|----------|--|--|
| 120      | Emergency program active<br>Restricted washing possible. | No boiler / tank heating<br>No fresh water supply<br>Check system  |
| 121      | Door not closed  | Check connection S1<br>Change microswitch<br>Check microswitch adjustment<br>Replacing a defective I/O circuit board   |
| 122      | Incorrect password /<br>no authorization                 | Enter code once again  |
| 123      | Factory setting parameter list                           | Switch power supply ON/OFF within 5 minutes and set parameters back to factory settings. This will be rejected and parameters will be retained. Information 123 will disappear |
| 420      | Shortage of rinse aid                                    | If the machine is ready for operation, a shortage of rinse agent will be signalled (only if there is a built-in warning system).   |
| 520      | Shortage of detergent                                    | If the machine is ready for operation, a shortage of detergent will be signalled (only if there is a built-in warning system).   |



| Info No. | Description                                  | Possible cause   |
|----------|--|--|
| 521      | Shortage of detergent with dosing system ADT | Impulses of the flow meter are recognized, although the detergent dosing is not approached. Valve of the dosing unit is not closing. |
| 522      | Error in the dosing system ADT               | Impulses of the flow meter are recognized, although the detergent dosing is not approached. Valve of the dosing unit is not closing. |

Table 2: Information displays

## 17.2 Error messages and troubleshooting



Figure 3: Error messages

Error messages will disappear automatically when the fault has been rectified.

Error messages (extract)

| ERR.-No. | Description   | Possible cause  |
|----------|---|---|
| 001      | EEPROM plug-in fault.   | EEPROM not available / incorrectly plugged in / defective<br>Empty or incorrect EEPROM<br>Replace EEPROM with correct parameter set   |
| 201      | Boilerniveau beim 1. Füllen nicht erreicht                      | Fresh water inlet insufficient (water faucet closed)<br>Entering hose kinked<br>Inlet filter soiled<br>Entering solenoid valve defective<br>Boiler switch defective   |
| 202      | Boiler level during filling not reached early enough            | Fresh water inlet insufficient<br>Entering hose kinked<br>Inlet filter soiled   |
| 203      | No change to boiler level switch detected on emptying           | Boost pump defective<br>Plug connector loosened<br>Start capacitor defective<br>Plug connector loosened<br>Plug connector loosened<br>Boiler level switch defective<br>No boost pump signal to - from input/output circuit boards<br>Check boost pump DSP / S2 using manual control |
| 204      | Following the end of final-rinse time, still no change detected | Boost pump defective<br>Plug connector loosened<br>Start capacitor defective<br>Plug connector loosened<br>Plug connector loosened<br>Boiler level switch defective<br>No boost pump signal to - from input/output circuit boards<br>Check boost pump DSP / S2 using manual control |



| ERR.-No. | Description  | Possible cause   |
|----------|--|--|
| 205      | Boiler temperature not reached after max. Heat time (P.310)  | Boiler heating defective / thermal fuse radiator<br>Temperature sensor defective, incorrect installation position<br>Boiler contactor defective, performance switch loosened<br>No signal from ON/OFF circuit boards                           |
| 210      | Temperature sensor short circuit boiler  | Check sensor cable (plug contacts)<br>Replace sensor<br>Install sensor correctly   |
| 211      | Temperature sensor interruption boiler   | Check sensor cable (plug contacts)<br>Replace sensor<br>Install sensor correctly   |
| 212      | Actual boiler temperature too high(>95°C)  | Contactor sticking<br>Incorrect sensor / defective sensor<br>Check sensor / cable  |
| 301      | Number of final rinse cycles for tank filling exceeded<br>Tank level analysis disrupted                            | Feeding water pressure too low<br>Sieve in feeding valve is dirty<br>Rinse jets soiled<br>Air trap soiled<br>Condensate in level pipe<br>Hose kinked / loose / not watertight  |
| 302      | During the self-cleaning programme the tank level (S3) does not fall on time.<br>(Only with built -in drain pump.) | Fresh water supply insufficient (water faucet closed)<br>Drain pump soiled / defective<br>Rotor loose<br>Drain pump plug connector loose<br>Start capacitor defective<br>Tank level analysis disrupted<br>No signal from ON/OFF circuit boards |
| 304      | Tank temperature not reached after max. heat time (P.314)  | Tank heating defective / thermal fuse<br>Radiator<br>Temperature sensor defective, incorrect installation position<br>Tank protection defective, performance switch loose  |
| 310      | Temperature sensor short circuit tank  | Check sensor cable (plug contacts)<br>Check sensor cable (plug contacts)<br>Replace sensor<br>Install sensor correctly   |
| 311      | Temperature sensor interruption tank   | Check sensor cable (plug contacts)<br>Replace sensor<br>Install sensor correctly   |
| 312      | Actual Tank temperature too high (>85°C)   | Contactor sticking<br>Incorrect sensor / defective sensor<br>Check sensor / cable  |

Table 3: Error messages

Should information or fault numbers not shown in the tables be indicated, or should the suggested measure not lead to the elimination of the fault, please notify a customer service technician.



## 18 Maintenance

Maintenance work should only be conducted if the machine has been switched off completely via the on-site power disconnection device.

### Existing safety systems may not be removed!



A functional test on all safety systems of the machine / installation is carried out during every regular maintenance

We recommend that you take out a maintenance contract with our manufacturer's agent in order to ensure a long service life.

### 18.1 Basic safety measures during normal operation

Observe the maintenance periods prescribed in the operating instructions!

Observe the maintenance instructions given in these operating instructions for individual components!



Before carrying out any maintenance or repair work, prohibit access to the operating area to any unauthorized persons! Provide or display a sign drawing attention to the maintenance or repair work!



Before implementing any maintenance or repair work the machine must be switched off completely via the on-site power disconnection device and secured against reactivation by using appropriate measures (e.g. via a padlock whose key is in the possession of the person conducting the maintenance or repair work)!

Failure to observe these precautions can result in severe physical injury or damage to property.



Before carrying out any maintenance and repair work, ensure that all the parts of the machine that may be touched have cooled down to room temperature!

Carefully dispose of any cleaning products that could harm the environment!

#### 18.1.1 Before starting operations following maintenance or repair work



Before starting operations following maintenance or repair work, all initial tests must be carried out as described in "Machine Settings for Initial Commissioning by the Service Engineer".

#### 18.1.2 Observe the environmental protection regulations



Legal obligations relating to the avoidance of waste materials and to their recycling/removal in accordance with applicable regulations must be observed!

In particular, during installation, repair and maintenance work, materials that could pollute water such as: Grease and oils, Cleaning fluids containing solvents, must not pollute the ground or run into the sewerage system! These materials must be stored, shipped, collected and disposed of in suitable containers!

## 18.2 Dosing units

The dosing units themselves are maintenance free in principle but the working life of the wearing parts (peristaltic tube) is largely dependent on the chemical used.

### 18.2.1 Change of products

Change of product means that one rinse aid or detergent product is replaced by another. The use of differing products alongside each other can result in break-downs.

- Hose lines and dosing units must always be rinsed out with warm water.



## 18.3 Maintenance plan

| Maintenance procedures  | FV 28G / FV28GiO<br>EcoStar 430 F<br>EcoStar 530 F-M | FV 40.2 / FV 60.2 /<br>FV 70.2 D | GK 60 | OR 50 H | EcoStar 545D /<br>DV 80.2 / DV 120.2 /<br>DV 125.2 / DV 200.2 /<br>DV 200.2 PW | DV 270 B | FV 130.2 – FV 250.2<br>/ DV 270.2 | Component OK | Component faulty | Component replaced |
|---|--|----------------------------------|-------|---------|--|----------|-----------------------------------|--------------|------------------|--------------------|
| <b>1. Pumps</b>   |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check pumps for watertightness, pump rotor noise, rotation direction and function                                 |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check pump suction  |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check pump sieves correctly fitting and operating correctly   |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check sliding ring washer/contra-rotation ring  |  |                                  |       |         |  |          |                                   |              |                  |                    |
| <b>2. Wash systems</b>  |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check water level in tank   |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check that wash water pipe is watertight  |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check washing system is complete and produces correct spray pattern   |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check wash arm hubs   |  |                                  |       |         |  |          |                                   |              |                  |                    |
| <b>3. Fresh water rinse</b>   |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check flow water pressure   |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check rinsing system is complete and produces correct spray pattern   |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check that system is watertight   |  |                                  |       |         |  |          |                                   |              |                  |                    |
| <b>4. Housing and mounting parts</b>  |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check housing, tank, sheet metal cover, hood, doors and covering of machine base for damage and correct operation |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check tank cover sieves   |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check boiler, hoses, clamps, plastic parts and seals  |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check operation of raising and lowering equipment   |  |                                  |       |         |  |          |                                   |              |                  |                    |
| <b>5. Fresh water installation</b>  |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check level regulation  |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check valves, clean dirt trap   |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check that all connections (incl. hand spray) are watertight  |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check settings of built-in water softener (if fitted)   |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check operation of complete/partial water softener or osmosis (if fitted)   |  |                                  |       |         |  |          |                                   |              |                  |                    |
| <b>For the GiO module:</b> Perform pre-filter change (must be completed every 6 months at the latest)             |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check water hardness  |  |                                  |       |         |  |          |                                   |              |                  |                    |
| <b>6. Waste water equipment</b>   |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check if watertight   |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check pressure hose position and operation of drain pump  |  |                                  |       |         |  |          |                                   |              |                  |                    |
| <b>7. Electrical installation</b>   |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check of all fuses  |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Tighten all electrical connections  |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check tank and boiler heating   |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check thermostat and stop switch  |  |                                  |       |         |  |          |                                   |              |                  |                    |
| <b>8. Detergent dosing</b>  |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check dosage, adjust if necessary   |  |                                  |       |         |  |          |                                   |              |                  |                    |



| Maintenance procedures                                 | FV 28G / FV28GiO<br>EcoStar 430 F<br>EcoStar 530 F-M | FV 40.2 / FV 60.2 /<br>FV 70.2 D | GK 60 | OR 50 H | EcoStar 545D /<br>DV 80.2 / DV 120.2 /<br>DV 125.2 / DV 200.2 /<br>DV 200.2 PW | DV 270 B | FV 130.2 – FV 250.2<br>/ DV 270.2 | Component OK | Component faulty | Component replaced |
|--|--|----------------------------------|-------|---------|--|----------|-----------------------------------|--------------|------------------|--------------------|
| <b>9. Rinse aid dosing</b>                             |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check dosage, adjust if necessary                      |  |                                  |       |         |  |          |                                   |              |                  |                    |
|  |  |                                  |       |         |  |          |                                   |              |                  |                    |
| <b>10. Operation check of the complete machine</b>     |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check machine for correct interaction of all functions |  |                                  |       |         |  |          |                                   |              |                  |                    |
|  |  |                                  |       |         |  |          |                                   |              |                  |                    |
| <b>11. Test run</b>                                    |  |                                  |       |         |  |          |                                   |              |                  |                    |
| Check results of test wash and rinse                   |  |                                  |       |         |  |          |                                   |              |                  |                    |
| brief instruction for new personnel                    |  |                                  |       |         |  |          |                                   |              |                  |                    |

## 19 Environmentally acceptable measures, Disposal of the installation

Each discarded appliance is to be made immediately unserviceable - to avoid later accidents.

- Switch the machine off completely via the on-site power disconnection device.

When you eventually dispose of the installation (dismantlement/scraping), the parts and their corresponding materials should preferably be re-used.

Here is a list of the materials that most frequently occur when dismantling:

- Chrome-nickel-steel
- Aluminum
- Copper
- Brass
- Electrical and electronic parts
- PP and other synthetic materials

## 20 Documentation

Installation drawing / technical sheet

Technical data sheet

Wiring diagram / Programming instructions

Installation regulations - general information



# Product range overview

## Washing machines with stationary wash process

Dishwashing machines, pot and container washing machines, glass washing machines, universal washing machines, salad and vegetable washing machines

## Washing machines with transport systems

Dishwashing machines with automatic conveyor transport, dishwashing machines with automatic basket transport

## Special washing systems

Fully automatic washing systems for dishware, trays, and cutlery. Flight catering systems for disposing, cleaning, and preparing dishware and equipment for providing onboard meals while in flight; industrial washing machines for specific types of washware; washing machines for trolleys and containers

## Conveyor systems

Tray and dishware transport conveyors, dishware sorting and stacking equipment, vertical conveyors

## Food waste systems

Machines and systems for handling food waste for environmentally friendly disposal

## Industrial kitchen equipment

Equipment and furnishings for central and local kitchens; trolleys, tray and dish stackers, tables, cabinets, and shelves made of high-grade steel, diverse organisational items

## Cleaning and disinfection equipment for hospitals and homes

Cleaning and disinfection machines for bedpans and other medical washware in the form of floor-mounted, wall-mounted, and built-in equipment; sluice units, installation units for sanitary areas in hospital rooms, complete furnishings for unclean workrooms.

## MEIKOLON cleaning and hygiene products

for glass, dishwashing machines and universal dishwashers as well as for cleaning and disinfection machines.

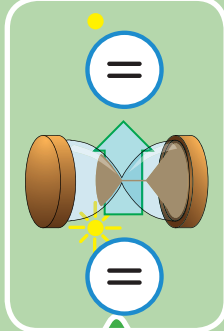
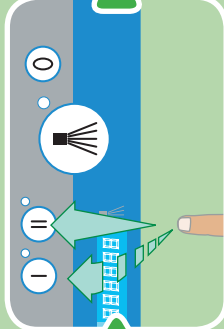
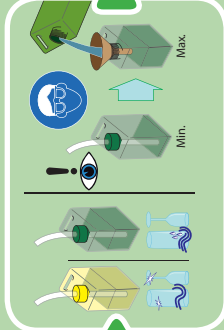
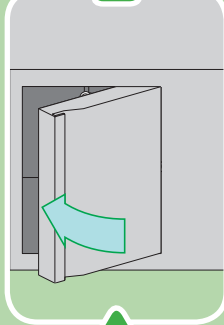
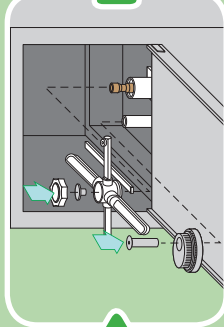
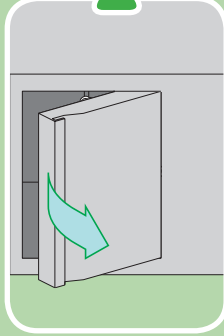


Complies with the hygiene requirements of DIN 10511-H for commercial class washing, DIN 10510 for commercial dishwashing and DIN 10522 for commercial washing of reusable crates and containers.

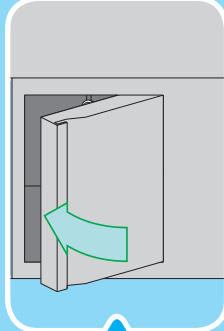
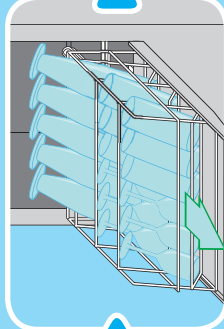
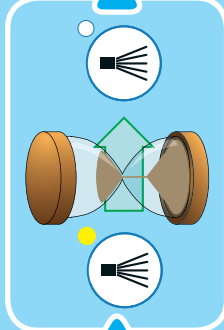
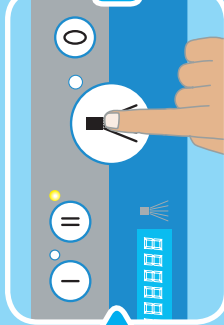
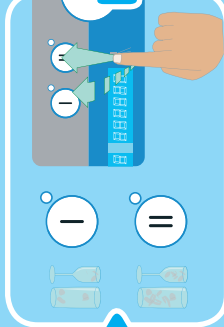
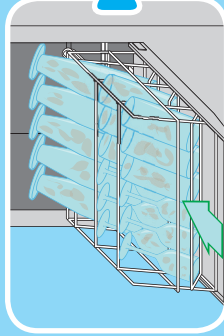


# FV 28 GiO

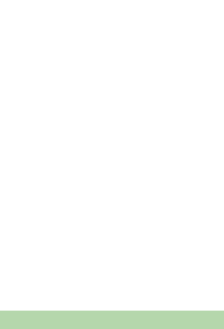
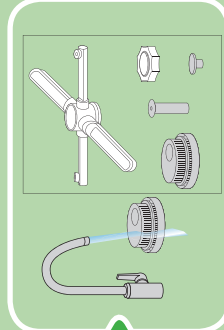
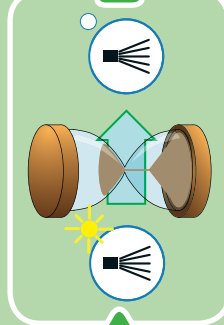
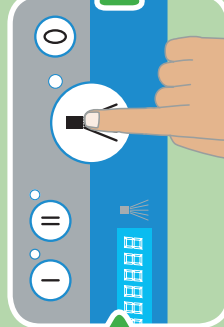
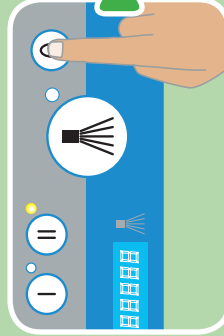
## START



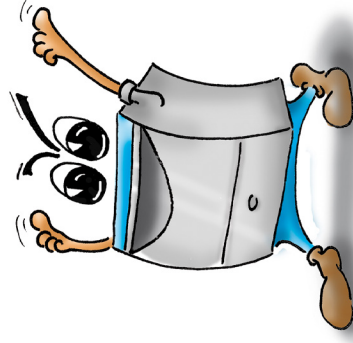
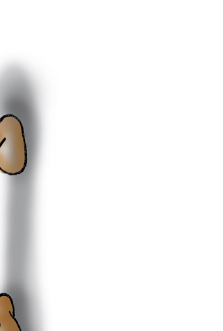
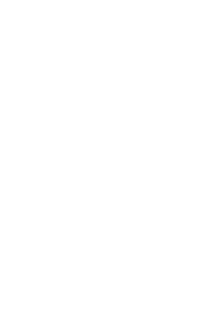
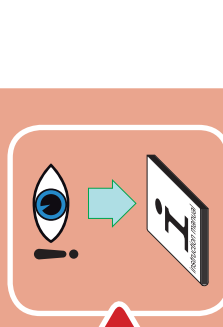
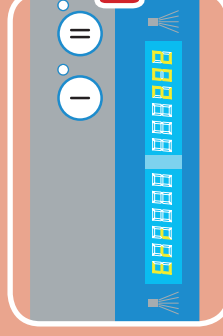
## CLEAN



## STOP



## ERROR





**Quick programming instructions**  
**FV 28 GiO**

|              |  |
|--------------|--|
| <b>m</b>     |  |
| <b>MEIKO</b> |  |

01\_10/1\_FV 28 GiO\_Kurzprogrammieranleitung\_EN.doc  
Update: 2008.03.27

The diagram illustrates a 1D cellular automaton rule set. It features a horizontal strip divided into two main sections: a grey section on the left and a blue section on the right. The grey section contains five circular icons representing different states or actions, each with a label and a pointer line:

- Exit**: A circle containing the number 0.
- Accept/modify**: A circle containing a black square with five lines radiating from it.
- Decrease value/ move backwards**: A circle containing two vertical bars (||).
- Increase value / move forwards**: A circle containing a single vertical bar (|).
- Value field**: A label pointing to a dashed rectangular box in the blue section.
- Function field**: A label pointing to a dashed rectangular box in the blue section.

The blue section contains a large dashed rectangular box representing the state of the automaton. Inside this box, there are two smaller dashed rectangular boxes, one labeled **Function field** and one labeled **Value field**. The **Function field** is on the left and contains a grey square with five lines radiating from it. The **Value field** is on the right and contains a grey square with five lines radiating from it. The entire diagram is set against a white background.

In order to programme the drive, the power supply must be ensured, and the machine must be completely switched off (no LED must be lit).

Modify service data: **CODE 10001**



To get into the code entry mode, you should keep the “0” key pressed (for around 3 seconds) until you see **Code** 1---- on the display unit. By pressing the “0” key once again, you can leave the programming area at any time.

The digit to be modified will flash. Using the key "I" will increase the display unit values, which will be accepted by using the "accept" key. You should select each of the digits in this way one after the other, until the code has been completely entered. If your entry is incorrect, you will leave the code entry procedure, and the information code 122 will be displayed. If you enter all the digits correctly, you will arrive at the service level.

You can move forwards using the “I” key, and backwards using the “II” key.

A diagram of a 1D lattice represented by a horizontal blue bar. Inside the bar, there are two small grey rectangles representing impurities. The left impurity is labeled 'Left impurity' and the right one is labeled 'Right impurity'. Above the bar, there are two sets of lines representing incoming and outgoing waves. The left set has four lines fanning out, and the right set has four lines converging. The entire diagram is set against a light blue background.

- 1-1** ---- View / modify parameters  
**1-2** ---- Ventilate rinse aid inlet  
**1-3** ---- Ventilate detergent inlet

**1-1** ----- Accept the position

**1-1** ----- Accept the position using the “accept” key, or use the “I” or “III” keys to select the parameters. On the left, the parameter Pxxx will be displayed, and on the right, the value belonging to it. You can use the “0” key to go back one level!

**1-1 ---- Choice of parameter to be used in the service data".**  
To modify one of the parameters

**1-1 ----** Choice of parameters as when viewing, but access is via code for “modify service data”.

To modify one of the parameters, select it by using the “accept” key—the value will flash. Select the value by using the “I” key or the “II” key, and save using the “accept” key. You can leave the current level and go back to the previous level by using the “0” key.

**1-3 ----** (Not applicable with vacuum dosing ADT)

Select the position you require. The selected dosing pump will be energized and the remaining running time will be displayed



1-4 490

The regeneration is started now and the remaining cycle time is indicated. This level can be left by pressing the "0" key. The regeneration is interrupted. The regeneration re-commences when the machine is switched on again.

If you receive an information message, you must follow the instructions. The rinse operation will still be possible.



If you receive an error message, no further rinse operation is usually possible. Notify customer service.



## Parameter mode

Attention: the modification of factory set parameters may cause the restricted overall operation of the machine. In case of arbitrary modification of parameters by unauthorized personnel, guarantee claims will become invalid.

| Par. no. | Service parameters/ setting options     | Use as    | Value range  | Unit               | Factory setting | Observation   |
|----------|---|-----------|--------------|--------------------|-----------------|---|
| 101      | Rinse programme / key 1                 | Parameter | 1 .. 50      | -                  | 3*              | Assign rinse programme no. to key 1; verification adjustable  |
| 102      | Rinse programme / key 2                 | Parameter | 1 .. 50      | -                  | 11*             | Assign rinse programme no. to key 2; verification adjustable  |
| 103      | Rinse programme / key 3                 | Parameter | 1 .. 50      | -                  | 5*              | Assign rinse programme no. to key "1+2 pressed at the same time"; verification adjustable   |
| 104      | Rinse aid dosing quantity               | Parameter | 0,10 .. 1,00 | ml/liters of water | 0.2             | Value must be set approximately according to manufacturer's information, then it must be corrected depending on the water hardness and the rinse result.  |
| 105      | Detergent dosing quantity               | Parameter | 0,1... 20,0  | ml/liters of water | 2.0             | Value must be set approximately according to manufacturer's information, then it must be corrected depending on the water hardness and the rinse result.  |
| 106      | Hardness degree                         | Parameter | 0 .. 50      | °dH                | 30              | The quantity of soft water available between two regenerations depends on the hardness of the water.  |
| 107      | Switch beep on / off                    | Parameter | 0/1          | -                  | 1               | Switch acoustic ready message on / off by beep  |
| 111      | Total operating time display            | Display   | 5-digit      | Hrs.               | 0               | Operating time, query only  |
| 112      | Total number of wash cycles             | Display   | 5-digit      | -                  | 0               | wash cycles / loads, query only   |
| 113      | Number of wash cycles since last reset  | Display   | 5-digit      | -                  | 0               | wash cycles / loads, resetting possible   |
| 114      | Serial number                           | Display   | 8-digit      | -                  | Serial number   | Possibility of querying factory settings<br>Attention: the first 5 digits will be displayed in rotation with the last 3 digits!   |
| 119      | IR-communication                        | Parameter | 0/1          | -                  | 1               | It is possible to shut off communication via IR interfaces.   |
| 120      | Load factory setting service parameters | Parameter | 0/1          | -                  | 0               | Effective only upon power supply reset ON / OFF.<br><b>Attention!</b> All changes to service parameters will be reversed.<br>Power supply reset must be carried out within 5 minutes, otherwise factory settings will not be loaded. Without power supply reset, the information 123 will be displayed. |

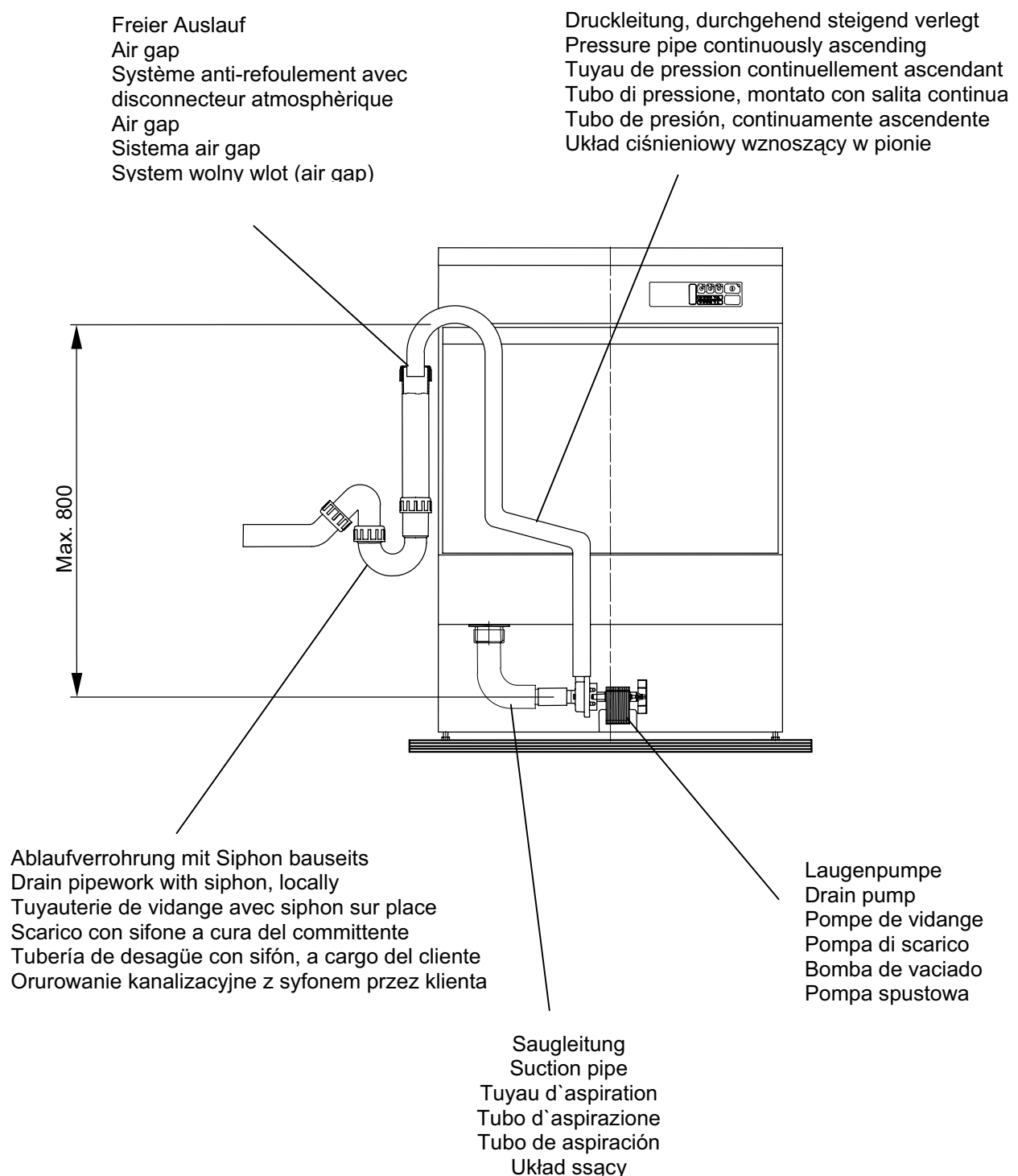
| Rinse programme no.: | Boiler temperature target value | Wash time target value |       |
|----------------------|---------------------------------|------------------------|-------|
|                      |                                 | Washing                | Total |
| 3                    | 65                              | 106                    | 120   |
| 5                    | 83                              | 196                    | 210   |
| 11                   | 65                              | 166                    | 180   |

(\*) Depending on the installed heating power and the infeed temperature, there can be a difference between the factory settings of the rinsing programs and the values listed above.

Details of further pre-defined rinse programmes are given in the operating Instructions, chapter 16.4.

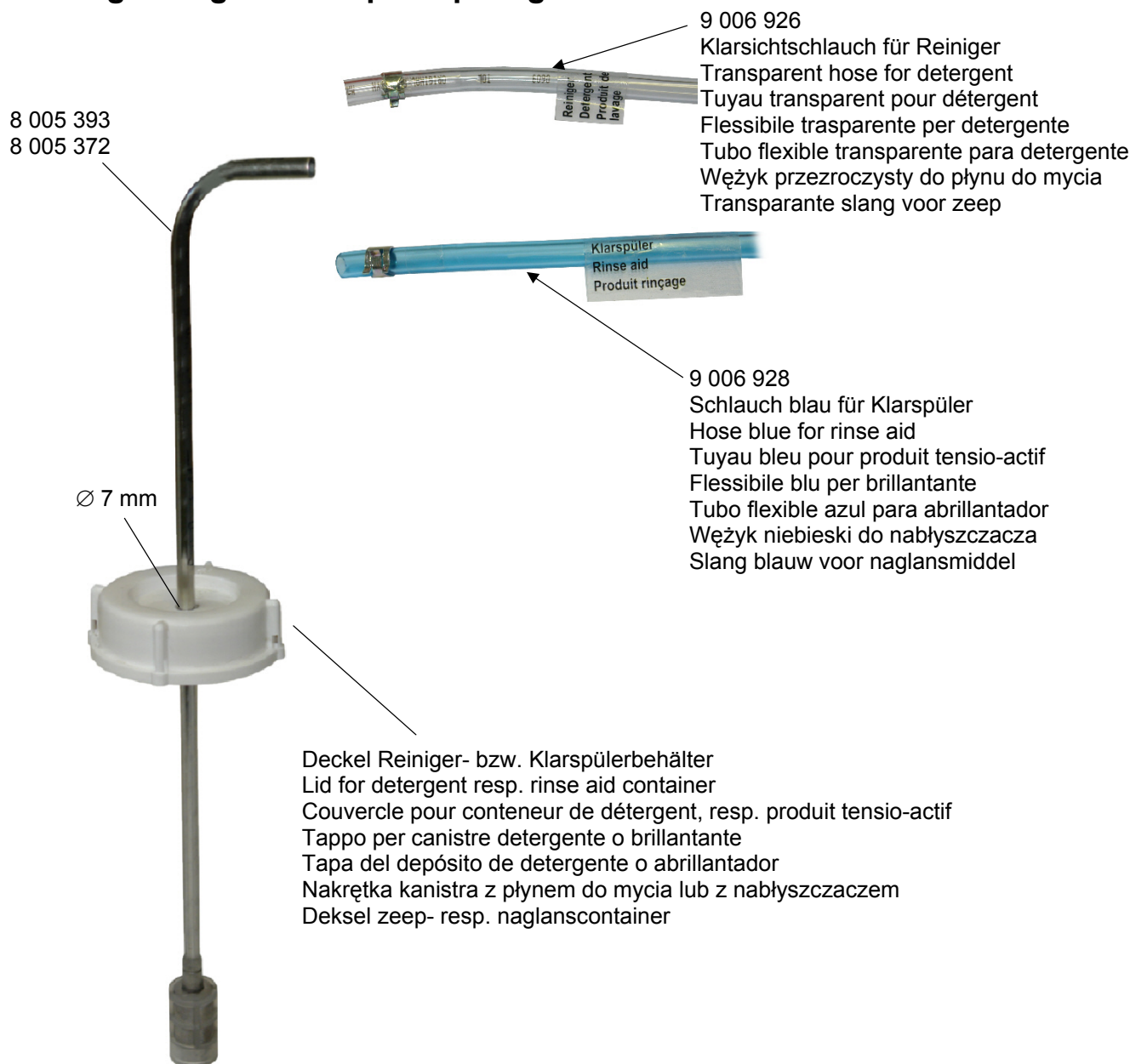


**Anschlussvorschrift für Laugenpumpe**  
**Connection prescription for drain pump**  
**Prescription de connexion pour pompe de vidange**  
**Prescrizioni di collegamento per la pompa scarico**  
**Prescripciones para la conexión de la bomba de vaciado**  
**Reguła instalacji pompy spustowej**





**Saugleitung für Reiniger bzw. Klarspüler**  
**Suction line for detergent resp. rinse aid**  
**Conduite d'aspiration pour détergent, resp. produit tensio-actif**  
**Tubo d'aspirazione per detergente e brillantante**  
**Tubo de aspiración para detergente y abrillantador**  
**Układ ssący płynu do mycia lub nabłyszczacza**  
**Aanzuigleiding voor zeep- resp. naglansmiddel**



**ACHTUNG!**

**Saugleitung von Wärmequellen fernhalten!**

**ATTENTION!**

**Keep away suction line from heating sources!**

**ATTENTION!**

**Ecartez la conduite d'aspiration de toute source de chaleur!**

**ATTENZIONE!**

**Tenere il tubo d'aspirazione lontano da fonti di calore!**

**¡ATENCIÓN!**

**¡Mantenga el tubo de aspiración alejado de las fuentes de calor!**

**UWAGA!**

**Układ ssący należy trzymać z dala od źródeł ciepła!**

**LET OP!**

**Aanzuigleiding van warmtebronnen verwijderd houden!**



Geschirrspülautomaten  
Gläserspülautomaten  
Topfwaschautomaten  
Universalwaschautomaten  
Salat- u. Gemüsewaschautomaten  
Vollautomatische Spülanlagen

Sonderwaschanlagen  
Förderanlagen  
Speisereste-Anlagen  
Kücheneinrichtungen  
Pflegeeinrichtungen  
Reinigungs- und Desinfektionsautomaten



**Original** / Original / Original / Originale / Original / Origineel

## EG-Konformitätserklärung

Datum: 2012-01-13 (Update)

EC Declaration of Conformity / Déclaration de conformité CE / Dichiarazione di conformità CE / Declaración de conformidad CE / CE-conformiteitsverklaring

**Firma** / Company/Société / Ditta / Empresa / Fabrikant:

**MEIKO Maschinenbau GmbH & Co. KG**

**Adresse** / Address / Adresse / Indirizzo / Dirección / Adres:

Englerstraße 3  
D-77652 Offenburg  
E-mail: info@meiko.de

### Auftrag Nr.

Order no. / No. de commande / No. d'ordine / No. de pedido / Opdracht nr.:

### Spülmaschine Typ

Dishwasher model  
Lave-vaisselle modèle  
Lavastoviglie modello  
Lavavajillas modelo  
Vaatwasmachine model

**FV 28 G**

**FV 28 GiO**

**FV 40.2**

**FV 40.2 G**

**FV 60.2**

**FV 70.2**

**FV 130 B**

**FV 250 B**

**FV 130.2**

**FV 250.2**

**DV 80 T**

**DV 80.2**

**DV 125.2**

**DV 120.2**

**DV 200.2**

**DV 200.2 PW**

**DV 270 B**

**DV 270.2**

**EcoStar 430 F**

**EcoStar 530 F-M**

**EcoStar 545 D-M**

### Konformitätserklärung

Declaration of Conformity / Déclaration de conformité / Dichiarazione di conformità / Declaración de conformidad / Conformiteitsverklaring:

**Hiermit bescheinigen wir in alleiniger Verantwortung die Konformität des Erzeugnisses mit den grundlegenden Anforderungen der folgenden EG-Richtlinien, harmonisierten Normen, nationalen Normen.**

We hereby declare at our sole responsibility that the product conforms to the essential requirements of the following EC Directives, harmonized standards, national standards.

Par la présente nous certifions sous notre seule responsabilité la conformité du produit avec les exigences fondamentales des directives CE, normes harmonisées et normes nationales suivantes.

Con la presente dichiariamo sotto la nostra responsabilità la conformità del prodotto con i regolamenti basilari delle seguenti direttive CE, normative armonizzate e normative nazionali.

Por la presente declaramos bajo nuestra sola responsabilidad que nuestros productos están en conformidad con las exigencias básicas de las siguientes directivas de la CE, normas homologadas y normas nacionales.

Hiermee verklaren wij onder geheel eigen verantwoordelijkheid de conformiteit van het product met de fundamentele en gestelde eisen volgens EG-richtlijnen, geharmoniseerde normen en nationale normen.

**EG-Richtlinie** / EC Directive / Directive CE / Regolamento CE / Directiva CE / EG-richtlijn

**2006/42/EG / 2006/95/ EG / 2004/108/EG**

**Offenburg, 10.04.2012**

**Dokumentationsverantwortlicher:**

Responsible for documentation / Responsable de la documentation / Responsabile della documentazione / Responsable de la documentación / Voor deze documentatie verantwoordelijk

**Daniel Ratano**

**MEIKO Maschinenbau GmbH & Co. KG, Englerstr. 3 – 77652 Offenburg - Germany**

**Unterschrift** / Signature / Signature / Firma / Firma / Handtekening

**Konstruktion** / Design Engineering Department / Dpt. Construction / Reparto Costruzione / Depto. de diseño / Constructie

**MEIKO Maschinenbau GmbH & Co. KG**

**ppa.**  
(per procura)

**Dr. Thomas Peukert**

(Leiter Entwicklung und Konstruktion)

Head of Development / Design / Responsable Développement / Construction / Direttore Sviluppo /  
Costruzione / Jefe de la sección de desarrollo y diseño / Chef Ontwikkeling/Constructie



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